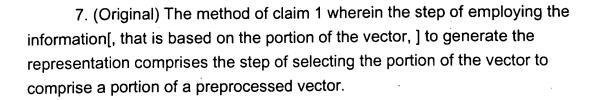1. (Amended) A method for generating a syndrome usable in a decoder, the method comprising the steps of:

employing information[, that is based on a portion of a vector,] to generate a representation, <u>wherein the step of employing the information to generate the representation comprises the steps of generating a reduction mask from a root of a generator polynomial and employing the reduction mask to generate the representation</u>; and

generating, with employment of the representation, the syndrome.

2. (Amended) The method of claim 1 wherein the step of employing the information[, that is based on the portion of the vector,] to generate the representation comprises the step of employing a number of minimal polynomials to operate on the portion of the vector.

3. (Original) The method of claim 2 wherein the step of employing the number of minimal polynomials to operate on the portion of the vector comprises the step of selecting the number of minimal polynomials to comprise a generator polynomial employed to encode the portion of the vector.

4. (Amended) The method of claim 1 wherein the step of employing the information[, that is based on the portion of the vector,] to generate the representation and the step of generating, with employment of the representation, the syndrome comprise the step of generating a syndrome for a binary Bose-Chaudhuri-Hocquenghem code.

5. (Amended) The method of claim 1 wherein the step of employing the information[, that is based on the portion of the vector,] to generate the representation and the step of generating, with employment of the representation, the syndrome comprise the step of generating a syndrome for a binary cyclic code.

6. (Original) The method of claim 1 wherein the step of generating, with employment of the representation, the syndrome comprises the step of converting and/or transforming the representation to obtain the syndrome.

7. (Original) The method of claim 1 wherein the step of employing the information[, that is based on the portion of the vector,] to generate the representation comprises the step of selecting the portion of the vector to comprise a portion of a preprocessed vector.

8. Canceled.

9. (Amended) The method of claim [8] 1 wherein the step of employing the reduction mask to generate the representation comprises the step of selecting the reduction mask to represent a minimal polynomial that is based on a cyclotomic coset and on the root of the generator polynomial.

10. (Amended) The method of claim [8] 1 wherein the representation comprises an odd-numbered representation, wherein the syndrome comprises an even-numbered syndrome, in combination with a method for generating the even-numbered syndrome, comprising the steps of:
α^2
  employing the reduction mask to generate the odd-numbered representation; and
  generating, with employment of the odd-numbered representation, the even-numbered syndrome.

11. (Original) The method of claim 10 wherein the root of the generator polynomial comprises an even-powered root of the generator polynomial, and wherein the step of generating, with employment of the odd-numbered representation, the even-numbered syndrome comprises the steps of:
  determining a conversion mask from an even-powered root of the generator polynomial; and
  converting, with employment of the conversion mask, the odd-numbered representation to obtain the even-numbered syndrome.

12. (Amended) The method of claim [8] 1 wherein the representation comprises an odd-numbered representation, wherein the syndrome comprises an odd-numbered syndrome, in combination with a method for generating the odd-numbered syndrome, comprising the steps of:

employing the reduction mask to generate the odd-numbered representation; and

generating, with employment of the odd-numbered representation, the odd-numbered syndrome.

13. (Original) The method of claim 1 wherein the step of generating, with employment of the representation, the syndrome comprises the steps of:

determining a conversion mask from a root of a generator polynomial; and

converting, with employment of the conversion mask, the representation to obtain the syndrome.
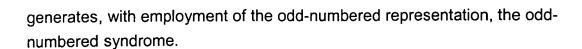
14. (Amended) A system for generating a syndrome usable in a decoder, the system comprising:

a reducer that employs information[, that is based on a portion of a vector,] to generate a representation and wherein the reducer employs a reduction mask to generate the representation, wherein the reduction mask is generated from a root of a generator polynomial; and

a converter that generates, with employment of the representation, the syndrome.

15. (Original) The system of claim 14 wherein the reducer employs a number of minimal polynomials to operate on the portion of the vector.

16. (Original) The system of claim 15 wherein the reducer selects the number of minimal polynomials to comprise a generator polynomial employed to encode the portion of the vector.

17. (Original) The system of claim 14 wherein the reducer and the converter generate a syndrome for a binary Bose-Chaudhuri-Hocquenghem code.

18. (Original) The system of claim 14 wherein the reducer and the converter generate a syndrome for a binary cyclic code.

19. (Original) The system of claim 14 wherein the converter converts and/or transforms the representation to obtain the syndrome.

20. Canceled.

21. Canceled.

22. (Amended) The system of claim [21] 14 wherein the reduction mask represents a minimal polynomial that is based on a cyclotomic coset and on the root of the generator polynomial.

23. (Amended) The system of claim [21] 14 wherein the representation comprises an odd-numbered representation, wherein the syndrome comprises an even-numbered syndrome, in combination with a system for generating the even-numbered syndrome, wherein the reducer employs the reduction mask to generate the odd-numbered representation, and wherein the converter generates, with employment of the odd-numbered representation, the even-numbered syndrome.

24. (Amended) The system of claim 23 wherein the root of the generator polynomial comprises an even-powered root of the generator polynomial, and wherein the converter converts, with employment of a conversion mask, the odd-numbered representation to obtain the even-numbered syndrome, wherein the conversion mask is determined from an even-powered root of the generator polynomial.

25. (Amended) The system of claim [21] 14 wherein the representation comprises an odd-numbered representation, wherein the syndrome comprises an odd-numbered syndrome, in combination with a system for generating the odd-numbered syndrome, wherein the reducer employs the reduction mask to generate the odd-numbered representation, and wherein the converter

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generates, with employment of the odd-numbered representation, the odd-numbered syndrome.

26. (Original) The system of claim 14 wherein the converter converts, with employment of a conversion mask, the representation to obtain the syndrome, wherein the conversion mask is determined from a root of a generator polynomial.

27. (Amended) An article of manufacture, comprising:

at least one computer usable medium having computer readable program code means embodied therein for causing generation of a syndrome usable in a decoder, the computer readable program code means in the article of manufacture comprising:

computer readable program code means for causing a computer to employ information[, that is based on a portion of a vector,] to generate a representation, wherein the computer readable program code means for causing a computer to employ the information to generate the representation comprises computer readable program code means for causing a computer to generate a reduction mask from a root of a generator polynomial and computer readable program code means for causing a computer to employ the reduction mask to generate the representation; and

computer readable program code means for causing a computer to generate, with employment of the representation, the syndrome.

28. Canceled.

29. Canceled.

30. (Amended) The article of manufacture of claim 27 wherein the computer readable program code means for causing a computer to employ the information[, that is based on the portion of the vector,] to generate the representation and the computer readable program code means for causing a computer to generate, with employment of the representation, the syndrome comprise computer readable program code means for causing a computer to generate a syndrome for a binary Bose-Chaudhuri-Hocquenghem code.

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31. (Amended) The article of manufacture of claim 27 wherein the computer readable program code means for causing a computer to employ the information[, that is based on the portion of the vector,] to generate the representation and the computer readable program code means for causing a computer to generate, with employment of the representation, the syndrome comprise computer readable program code means for causing a computer to generate a syndrome for a binary cyclic code.

32. (Original) The article of manufacture of claim 27 wherein the computer readable program code means for causing a computer to generate, with employment of the representation, the syndrome comprises computer readable program code means for causing a computer to convert and/or transform the representation to obtain the syndrome.

33. Cancelled.

34. (Amended) The article of manufacture of claim 27 wherein the computer readable program code means for causing a computer to employ the information[, that is based on the portion of the vector,] to generate the representation comprises:

      computer readable program code means for causing a computer to generate a reduction mask from a root of a generator polynomial; and

      computer readable program code means for causing a computer to employ the reduction mask to generate the representation.

35. (Original) The article of manufacture of claim 34 wherein the computer readable program code means for causing a computer to employ the reduction mask to generate the representation comprises computer readable program code means for causing a computer to select the reduction mask to represent a minimal polynomial that is based on a cyclotomic coset and on the root of the generator polynomial.

36. (Original) The article of manufacture of claim 34 wherein the representation comprises an odd-numbered representation, wherein the syndrome comprises an even-numbered syndrome, wherein the at least one computer usable medium includes second computer readable program code

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means embodied therein for causing generation of the even-numbered syndrome, the second computer readable program code means in the article of manufacture comprising:

computer readable program code means for causing a computer to employ the reduction mask to generate the odd-numbered representation; and

computer readable program code means for causing a computer to generate, with employment of the odd-numbered representation, the even-numbered syndrome.

37. (Original) The article of manufacture of claim 36 wherein the root of the generator polynomial comprises an even-powered root of the generator polynomial, and wherein the computer readable program code means for causing a computer to generate, with employment of the odd-numbered representation, the even-numbered syndrome comprises:

computer readable program code means for causing a computer to determine a conversion mask from an even-powered root of the generator polynomial; and

computer readable program code means for causing a computer to convert, with employment of the conversion mask, the odd-numbered representation to obtain the even-numbered syndrome.

38. (Original) The article of manufacture of claim 34 wherein the representation comprises an odd-numbered representation, wherein the syndrome comprises an odd-numbered syndrome, wherein the at least one computer usable medium includes second computer readable program code means embodied therein for causing generation of the odd-numbered syndrome, the second computer readable program code means in the article of manufacture comprising:

computer readable program code means for causing a computer to employ the reduction mask to generate the odd-numbered representation; and

computer readable program code means for causing a computer to generate, with employment of the odd-numbered representation, the odd-numbered syndrome.

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39. (Original) The article of manufacture of claim 27 wherein the computer readable program code means for causing a computer to generate, with employment of the representation, the syndrome comprises:

computer readable program code means for causing a computer to determine a conversion mask from a root of a generator polynomial; and

computer readable program code means for causing a computer to convert, with employment of the conversion mask, the representation to obtain the syndrome.

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